TEACHERS' RETIREMENT BOARD

REGULAR MEETING

SUBJECT: State Teachers' Automation Redesign Team (START) Project Update

ITEM NUMBER: 11

ATTACHMENT(S): 2

ACTION: _____

DATE OF MEETING: May 7, 1998

INFORMATION: X

PRESENTER(S): Mr. Costa

Attached are the monthly reports (Attachments A and B) from Laura Metzger, Oversight Consultant for Science Applications International Corporation and Maureen Rice, Project Director, SPL Worldgroup Consulting. Presentations on the Data Conversion and System Testing efforts have been rescheduled from the April Board meeting to the May meeting.

Science Applications International Corporation

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Attachment A

Mr. Jim Mosman
CEO, STRS
7667 Folsom Blvd
PO Box 15275
Sacramento, CA 95851-0275

April 20, 1998

Dear Mr. Mosman:

The following represents SAIC's monthly START Oversight status report for March 17, 1998 through April 20, 1998. Included in the report is a summary of activities for the period, a discussion of the status of the project, and an updated summary of risks and mitigation activities associated with the project.

SPL and the START team are working toward resolving outstanding development issues. It is important that these issues be resolved as quickly as possible to determine the impact on the currently baselined schedule. In initial drafts of the issue resolution schedule it appears that there will not be complete resolution until the June, 1998 timeframe. This could now be later, as some initial issue resolution milestones have been missed. There appears to be good cooperation in resolving these issues, but until they are fully resolved the viability of the current schedule is difficult to assess. SPL is currently reworking this schedule and has committed to developing a detailed schedule to avoid any further delays in resolutions.

I have made some changes to the status and risk portions of this report from last month. Changes from the previous month are marked standard MS-Word editing. I apologize for not being able to attend this month's board meeting, but I will be on the East coast. Please let me know if you would like to have me available via phone during the meeting time to address questions the board may have and I will make the necessary arrangements.

SAIC will continue to track progress of this important project. Please give me a call if you have any questions.

Sincerely,

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

Laura J. Metzger
Assistant Vice-President and Manager, Systems Integration and Support Division
Manager, START Oversight Project

START OVERSIGHT REPORT

April, 1998

Science Applications International Corporation
Systems Integration and Support Division
10260 Campus Point Drive
San Diego, CA 92121

START OVERSIGHT STATUS

Summary of Oversight Activities:

SAIC has performed the following oversight activities for the STRS START project in the March/April time frame:

- Attend various status and system expert meetings
- Supported STRS in Board of Director's meeting
- Reviewing SPL specification deliverables
- Reviewing test strategy to determine if there are approaches that would reduce staffing requirements
- Assisting STRS in defining requirements for documentation/data management
- Working with STRS on strategy for overall system implementation and tracking development of integrated work plan for implementation
- Assisting STRS in reviewing contract modifications and in defining acceptance criteria for final acceptance

Key START Oversight Issues

SAIC has identified the following key issues for START and is actively tracking the status of each issue area. A description of each issue is provided on the following pages and is updated on a monthly basis.

- Status of the software development effort relative to the plan;
- Resolution of Technical Issues
- Status of the conversion effort relative to the plan;
- Management of Project Scope;
- Feasibility of Testing Strategy
- Feasibility of Implementation Strategy

Project Risk Assessment

SAIC has performed a risk assessment of the project and risk assessment summary is provided at the end of the report. Changes from the previous report are noted with editor markings.

MANAGEMENT OF THE SOFTWARE DEVELOPMENT EFFORT

The SPL work plan submitted in February, 1998 has been accepted by STRS for baseline. The SPL project manager, the test manager and the conversion team manager began monthly meetings, prior to the SPL project meeting, to discuss project status and determine that all deliverables and plans are on track. For anything not on track, the group will discuss impact on each schedule to determine overall project impact. This group will also provide an overall project schedule update that will be presented to the START management team, when necessary.

SPL is on schedule for delivery of the first release. SPL and STRS are reviewing processes associated with release delivery and acceptance. SPL has not, however, met milestones established for resolution of high priority design issues. Impact on not meeting the design issue milestones could affect later release dates. SPL is developing a detailed plan for issue resolution, which will be delivered by the end of April.

RESOLUTION OF OUTSTANDING TECHNICAL ISSUES

SPL and STRS have jointly developed a process for dealing with technical issues as they arise. This process appears to be working better than the previous ad hoc methodology. These new terms of engagement help focus discussions and help in planning for the timely resolution of issues. The team has made considerable progress in this area and the workings of the process seem understood by the whole team.

There are, however, still important outstanding issues in the areas of benefits and detailed journal. A key for success of this project will be timely resolution of the remaining design issues. SPL ~~will be preparing~~prepared a detailed plan for resolving these issues, which includes the dates of planned meetings, people required to attend the meetings, and dates by which resolution is required to avoid schedule delays. Delivery of specification updates, as discussed previously, have not been provided on the planned dates and a more detailed plan is being developed (see previous description).. Overall status of the project and viability of the project plan can not be understood without understanding the planned resolution of these issues.

STATUS OF THE CONVERSION EFFORT

The Conversion Team has been working more closely with SPL on conversion planning and this will mitigate many of the risks associated with the conversion effort. The STRS conversion team and SPL are working jointly to develop the plan for conversion. SPL participation in the conversion effort is essential to the long-term success of the conversion effort.

The conversion team has ~~developed~~ completed a detailed conversion work plan, which has been reviewed by the START~~ team and is currently being revised to reflect team comments~~. This plan will allow for the tracking of progress and status and provide task linkages so the impact of deviations from the plan can be understood. Status tracking and reporting of the conversion effort has begun.

As part of the conversion plan, STRS must work with SPL to verify that the current design does not pose conversion issues (i.e., that the data validation parameters in STRS are not so tight that existing data can not be utilized by the system). This has been an open issue for many months and must be prioritized to ensure a timely resolution. This issue has not yet been completely resolved, although ~~there have been some further discussions~~the issue is being considered jointly by the STRS conversion team and the SPL conversino support person.. A date for resolving the issue and assignment of responsibility for the issue is necessary to ensure completion.

Discussions have begun with STRS Internal Audit team to ensure that processes and procedures are in place to verify the reconciliation between the new and old systems. Services of an EDP Auditor are being sought to support identification and implementation of the necessary processes. Firms are being interviewed to locate this expertise.

MANAGEMENT OF PROJECT SCOPE

A change management process has been developed for the START project that will assist in management of project scope. STRS must make every effort to limit the number of changes required to the system and ensure that all changes due to new required functionality take a modest approach. Project scope must be controlled to ensure that SPL can successfully complete their contracted work. Without careful and prudent change management, it will be difficult to ever complete and implement the new system. STRS has agreed to severely limit changes to those items that make the system unusable without the addition. Scope changes will continue to be carefully monitored throughout the remainder of the project.

As discussed in the issue on Issue Resolution, it is imperative that the change resolution process be refined to facilitate rapid resolution of scope issues. There are outstanding change requests that must be resolved between STRS and SPL to determine whether or not to implement the change. SPL and STRS are scheduled to meet this month to determine the status of these requests.

FEASIBILITY OF TESTING STRATEGY

The current testing strategy document appears to be acceptable to both STRS and SPL and forms a good basis for developing the tactical testing plan. Strategies for unit and integration testing have been jointly developed by STRS and SPL. The initial product delivery, scheduled for April, 1998, will be a pilot for what is included for integration jobs. A detailed checklist has been developed that defines STRS expectations upon submission of a deliverable to test.

A detailed tactical plan is required to ensure that STRS has sufficient resources assigned to testing such that as deliverables are made they can be tested and approved in a timely manner. Resource loading is being reviewed to determine approaches for meeting the resource requirements. The test work plan will be reviewed to determine feasibility and resource requirements as it is completed.

Initially defined system acceptance criteria and performance requirements have been defined and reviewed with SPL, START management and SAIC. SPL comments have been reviewed and, where appropriate, applied to the criteria. While the definitive acceptance criteria will be adherence to the specifications, SPL is at significant risk until the STRS staff can review the final versions of the specifications (including any changes to the external specifications that result from internal design issue resolution). Updated specifications must be provided in a timely manner to reduce this risk. The STRS test team must document the acceptance criteria and performance requirements and these requirements should be reflected in the test cases.

FEASIBILITY OF IMPLEMENTATION STRATEGY

Considerable progress has been achieved in the development of an implementation strategy. Tasks have been identified with associated responsibilities documented. A work plan format has been recommended. Approval by group members should occur soon.

Individual focus groups are currently meeting to develop strategies that they can incorporate into the overall START plan. Work on this effort is at a lower priority level than resolution of issues and testing and conversion planning, however, the appropriate level of progress is being made. The individual teams will then produce resource needs as well as timelines. STRS will then have an opportunity to ensure that they can meet staffing requirements and make plans to add staff, if necessary.

One serious concern though, is the lack of SPL involvement in this activity to date. This activity has been in work for over several months, without any dedicated involvement from SPL. This can only result in the need to educate SPL in the effort, and properly integrate their activities in the overall successful achievement of the plan. It is recommended that SPL begin participation in these meetings as soon as possible.

PROJECT RISK SUMMARY

The following table describes the overall risks associated with the START project. Risks are always present and unavoidable in any software development project. Risk management is an important part of the project management process, as it helps the project manager foresee potential problems before they occur. Mitigation strategies can be put in place to deal with risks before they become problems.

The following risk summary table identifies key START risks, defines the impact of the risk if it were to become a problem, assigns a probability of the risk occurring, describes the risk and identifies mitigation strategies or recommended actions that could help avoid the realization of the risk. Risk impact levels are defined as follows:

- High: If not addressed, there could be severe impact to the project success due to unacceptable schedule slip, cost impact or quality of product
- Medium: If not addressed, there could be significant impact to the project success due to unacceptable schedule slip, cost impact or quality of product
- Low: If not addressed, there could be some impact to the project success due to unacceptable schedule slip, cost impact or quality of product

Probability of risk is defined as follows:

- High: Mitigation measures do not seem sufficient to overcome the risk or the risk is already being dealt with as an issue on the project
- Medium: Mitigation measures are being followed and appear to be successful, but the risk threatens to become an issue
- Low: Mitigation measures are in place and the risk appears to be well controlled at this point in the project.

Changes to the risk summary table that have been made since the last delivery of this report are denoted with standard editing marks. This should facilitate review of the material.

Risk	Impact	Prob Occur	Description of Risk	Mitigation Strategies/ Recommended Activities	Status of Mitigation Activities
Project completion not on schedule.	High	High	The date for software delivery is currently May, 1999. Full-up software development has been delayed to resolve outstanding internal design issues. Changes resulting from major legislation over the next 18 months could impact the ability to complete the project on schedule.	A detailed development work plan is required. This new work plan will allow for better tracking of project progress and allows for improved status reporting on both a technical team and senior management perspective.	SPL has provided a detailed baselined work plan that describes development activity and allows for tracking of planned versus actual progress. The plan forms the basis for the conversion, test and implementation plans.
				STRS must complete an overall implementation project plan that combines the development, conversion, testing and implementation schedules.	This effort is currently underway. The draft plan requires modifications to resolve conflicts and achieve resource leveling.
				Implement formal program management reviews to ensure the schedule accurately reflects the development effort.	A team comprised of the SPL project manager, the test manager, the conversion manager, and the oversight manager will meet each month before the planned START management meeting to review project status and discuss impact of any schedule changes.
				An incentive program for on-time or early delivery may be beneficial to reduce risk of schedule delay and to ease SPL's cash flow issues.	SPL and STRS have agreed to changes in the payment schedule that reduce the amount initially withheld, based upon turnover of a deliverable to a defined set of quality criteria.
				The current system can continue to operate until START is ready for implementation. The old system will be a fallback method.	The current system is being made Year 2000 compliant to ensure this remains a viable option.
				Design issues must be resolved to avoid	~~A plan for timely resolution of remaining~~

Risk	Impact	Prob Occur	Description of Risk	Mitigation Strategies/ Recommended Activities	Status of Mitigation Activities
				impact of issues on project schedule. timely manner.	~~design issues has been developed and is being implemented. Updates to the plan are in progress.~~Specification deliverable deadlines established for resolution of top priority design issues have been missed. If issues are not resolved in a timely manner, the overall START schedule could become impacted.
Project completion not on budget.	Med	Low	Since the project is taking considerably longer than anticipated there are budgetary concerns to be addressed. Recently approved project budget addressed known concerns.	Since this is a fixed price contract, control of system changes can be used to control project costs.	The improved change management process will provide STRS with an improved means for tracking cost impacts due to changes. Some enhancements to the process may be required and are being considered as part of a continual process improvement effort.
Recruitment and retention of staff for development and implement-ation efforts will be a challenge due to market pressures for skilled program-mers, particularly those familiar with NATURAL and object	High	Med	SPL has had a significant turnover of valuable personnel in the past months.	Develop means of keeping SPL staff on the project.	SPL has implemented an incentive program for their staff to improve retention. SPL is also going to utilize off-shore staff, carefully managed by a key systems analyst from the San Francisco office, to augment staff. Internal recruitment efforts are underway. SPL is currently staffed to plan. SPL ~~is also developing~~has developed a training program to bring new hires up to speed quickly on the project.

Risk	Impact	Prob Occur	Description of Risk	Mitigation Strategies/ Recommended Activities	Status of Mitigation Activities
programming.					
Staffing will be available to support implementation and operation and maintenance of the system.	Med	Med	Staffing is a risk due to Year 2000 programmer shortages. STRS requires support by subject matter experts. STRS staff is overloaded due to their many job commitments, potentially resulting in burnout.	STRS has had difficulty staffing for conversion, and may be requiring additional staff for testing and implementation. STRS must identify staffing requirements early to allow for hiring of staff or consultants to support effort.	The overall implementation plan, conversion plan and test plan will provide STRS with the information needed to identify staffing needs. These plans ~~are currently under~~have been developed. ~~development and drafts are scheduled for completion in mid February~~. STRS is also reviewing testing strategies to determine if there are ways to reduce staffing requirements and methods to increase available staff during peak testing periods are being explored. Contract allows STRS to use T&M contracting for support services. This could be applied for operation and maintenance.
SPL could decide to walk away from the project due to cash flow issues, fixed price overrun impact, or serious tech-nical issues to avoid corporate exposure.	High	Low	In a fixed price contract, a contractor may become overwhelmed by the cost issues associated with a contract. It may be necessary to turn away from a job rather than run the risk of financial failure.	STRS and SPL must maintain an open relationship where issues can be discussed and resolved. STRS and SPL must resolve payment term issues. STRS must ensure that specifications are detailed and complete so that another contractor could finish the effort	Monthly meetings with senior management are held. STRS and SPL have agreed to payment terms that relieve SPL cash flow and provide STRS retention in the event there are problems with the system. Specification release dates ~~are being~~have been ~~carefully reviewed~~defined in the project plan. STRS has expressed the need

Risk	Impact	Prob Occur	Description of Risk	Mitigation Strategies/ Recommended Activities	Status of Mitigation Activities
				if required.	for early completion of these deliverables.

Risk	Impact	Prob Occur	Description of Risk	Mitigation Strategies/ Recommended Activities	Status of Mitigation Activities
STRS work flows are significantly impacted by the new system, causing problems in acceptance and implementation.	Med	Low	Any new IT system requires that work flows be examined to ensure the system can operate in the current work flow, or that work flows are changed to reflect capabilities of the new system.	The START system has been designed to minimize the impact on day to day work flow.	While some areas will require new work flows, the users have been involved in the design and testing of the system and should have time to develop the necessary policies and procedures associated with work flow changes. A Detailed Journal team has been formed to specifically review work flow issues associated with this new capability.
				The testing effort should verify that all work flows can be completed and that the necessary controls are in place to effectively operate the system.	System experts have been made aware of the need to include these considerations in their test procedures.
				Audit procedures must be reviewed to ensure compliant operation of the system and of conversion.	Qualified personnel are being sought to support the STRS Audit organization in definition/verification of audit processes.
START functionality does not meet STRS needs	High	Med	Any new IT system runs the risk of not meeting user needs.	Ensure users should be involved in requirements effort.	STRS has invested significant resources to ensure that users of the system understand what is being developed and to ensure that it meets operational needs.
				Specifications must detail planned functionality and be reviewed by the user team.	Specifications are not currently up to date. SPL has committed to more timely updates of the specifications as internal design issues are resolved. The development work plan includes times for review and correction of the specifications.
				Acceptance test criteria must be specified.	The test team is working with the specifications to define system acceptance

Risk	Impact	Prob Occur	Description of Risk	Mitigation Strategies/ Recommended Activities	Status of Mitigation Activities
					criteria. Acceptance test criteria is typically defined in the specification stage, but an effort is ongoing to get the criteria specified and documented~~.~~.
STRS has in-adequate staff resources to implement test strategy.	Med	High	Testing will be a major component of the system implementation effort. This effort will require significant STRS resources. There are significant ramifications in terms of SPL payment and system deployment if there are inadequate resources to test the system in a timely manner.	Begin addressing staffing needs early, based on the detailed test plan. Involve users in the testing and acceptance of the system.	STRS has hired an experienced testing consultant to manage and plan the testing effort. The plan will identify if additional resources are needed to support testing and acceptance of the system. STRS is developing strategies for staffing during peak test periods and is reviewing the test strategy to maximize efficiency of staff utilization. A core STRS test team has been formed that includes system experts and IT staff to support planning and coordination of the test effort. This team will be able to identify staffing needs early, leaving time for staffing.
Data in current system not able to be converted correctly.	Med	Med	There may be data in the current system that is not stored in the new system. Also, there may be data in the new system that is not supported in the old system. There is also a concern that validation	Define conversion strategy. A conversion work plan must be completed to determine feasibility of the	The conversion strategy has been jointly developed by STRS and SPL and should provide a workable approach. Both gradual and "big bang" approaches were considered. A work plan ~~is in progress~~has been

Risk	Impact	Prob Occur	Description of Risk	Mitigation Strategies/ Recommended Activities	Status of Mitigation Activities
			criteria in the new system may not be met by the old data.	conversion being completed within the necessary schedule. Audit procedures are needed to verify processes for conversion and to validate data conversion.	completed, and ~~comments~~ is being used to track progress of the effort. ~~on the draft plan are being incorporated.~~ The STRS Audit organization recognizes the need to define EDP Audit processes for the conversion. Qualified personnel are being sought.
Ability to convert and go live can not be completed in available timeframe.	High	Med	There is a significant effort required to convert existing data and to verify that conversion is accurate. There is a limited window in which to perform this task to ensure clients receive benefits checks on time.	Develop detailed plan for crossover in conversion plan.	This area is being addressed in the implementation plan. Strategy should be piloted and proof of concept performed/ trialed prior to actual cutover. The conversion strategy is working carefully on the time it takes to actually convert data and trying to make it as efficient as possible. Model office testing will also support verification of the process.
STRS staff can not maintain the system following delivery	Med	Low	Technology transfer is an integral part of the project. STRS staff must be able to understand how to operate and maintain the system following acceptance and delivery.	Develop mentor team.	STRS and SPL have successfully implemented a mentor team that is led by SPL and staffed by STRS. This team will transition to support testing and operational support. STRS did eliminate participation in some aspects of the development effort, particularly report generation, with these items being taken over by SPL. This was viewed as having a minimal impact on the technology transfer. Status of mentor team productivity is maintained for review.

Risk	Impact	Prob Occur	Description of Risk	Mitigation Strategies/ Recommended Activities	Status of Mitigation Activities
					STRS has reorganized internal reporting of the mentor team to allow for closer management and skill assessment of the team and to allow sharing of resources with the conversion team.
				Involve the IS staff in the testing effort.	In recent months the STRS IS team has been more directly involved in the test strategy development and in developing a better understanding of the products being delivered. This participation is expected to continue throughout the testing effort. They are also supporting definition and implementation of the configuration management and production support aspects of the testing environment, which will help the IS team develop appropriate procedures for actual production rollout.
				Include training with delivery of the system.	Training is provided for in the current contract and is being considered in the overall implementation plan.
				Provide contractual means for providing technical support following completion of system development.	A T&M item is included in the contract to allow for technical support by SPL following system acceptance.
				Provide technical documentation with the system.	To contain costs and schedule, the current effort requires SPL to generate only external

Risk	Impact	Prob Occur	Description of Risk	Mitigation Strategies/ Recommended Activities	Status of Mitigation Activities
					specification documentation. Internal specifications are provided at a lesser level, with SPL providing notes, but not providing formal deliverables. Technology transfer opportunities are provided to offset some of the limitations on documentation. The STRS IS team has provided standardization guidelines to SPL and SPL has agreed to meet them.
				Develop Maintenance Strategy/Plan	The START team should develop an overall maintenance strategy ~~the~~ that reviews cost/benefits of various maintenance strategies as the system development matures. As the STRS staff become more familiar with the START program, various strategies for cost effective maintenance options should be identified and carefully evaluated. The strategy should address issues, such as technology transfer and documentation requirements, for each of the options.